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# **Detailed description of the invention**

## **Pg.1**

Referring now specifically to the drawings. The numeral 1 refers to the transverse disc motor. The motor includes a valve disc 2 with its aperture 3, housings 4, seals 7, and 8, bearings 5 and 6, adjuster 9 and 10, a gearbox 11, a pair of corner gears 12 and 13, a pressure vent 14, and a timing gear 15.

The motor also includes a power disc 16 with its housing 17, its bearings 18 and 19, seals 20 and 21, adjusters 22 and 23, power cups 24, 25 and 26, pressure vents 27 and 28, intake port 29, exhaust port 30 and fly gear 31.

The timing gear 15 and the fly gear 31 have a housing 32 which is fastened to the valve disc housing 4 and the power disc housing 17.

The materials from which the valve disc motor 1 is constructed will depend on application, metals, ceramics, plastics etc.

The power disc 16 and the valve disc 2 are timed together by the meshing of the fly gear 31 and the timing gear 15.

Timing gear 15 motion, is transferred through the timing gear shaft 33 then through the corner gears 12 and 13, hence to the valve disc 2.

As the power disc 16 rotates clockwise or counter-clockwise one of the power cups 24, 25 or 26 approach the valve disc 2. The valve disc 2 is so timed with the power disc 16 that the aperture 3 is in the correct position to allow the power cup 24, 25, or 26, to pass through the perimeter of the valve disc 2. As the power disc 16 rotates further, so also

# **Detailed description of the invention**

## **pg.2**

Does the valve disc 2, moving the aperture 3, into the valve disc housing 4, closing it.

Further rotation of the power disc 16 creates a void between the power disc cup 24, 25 or 26, and the valve disc 2. Liquid or gas may be moved into the void. If the liquid or gas is under pressure it will drive the motor 1. If the liquid or gas is not under pressure the motor 1 must be driven. The void becomes a vacuum, a liquid or gas moves through the intake port 29 into the void and will be trapped between the power cups 24 and 25, 25 and 26, or 26 and 24, until the space between the power cups is again intersected by the valve disc 2. at which point pressure will develop between the back side of the power cups 24, 25 or 26, and the valve disc 2. Forcing the liquid or gas through the exhaust port 30, the exhaust process is the same whether the motor 1 is driving or being driven.

The discs 2 and 16 are machined within the closest tolerances possible to their housings 4 and 17. Clearance between the discs 2 and 16 and their housings 4 and 17 is maintained by the use of the tapered roller bearings 5, 6, 18 and 19 and their adjusters 9, 10, 22, and 23. Various condiments may be added depending on the application of the motor but the configuration and purpose of the discs remains the same though the discs 2 and 16 do not necessarily have to be at right angles to one another. The pressure vents

# **Detailed description of the invention**

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\_14, 27 and 28, allow for bypass gasses or liquids to escape the motor, preventing them from passing by the seals 7, 8, 20 and 22, and contaminating the bearings 5, 6, 18 and 19, or their lubricants.

The valve disc 2 does not have to be perpendicular to the power disc 16. The valve disc 2 being at an angle to the power disc 16 other than ninety degrees may be desirable in certain applications both for the purpose of mechanical efficiency as well as the outward configuration of the motor 1.

The transverse disc motor 1 may also have multiple valve discs 2a, and 2b etc., for the purpose of increasing the performance of the transverse disc motor 1. It should also be said here that any material passing through the transverse disc motor 1 should enter and exit so as to further facilitate the rotation of the valve discs 2a and 2b etc. The transverse disc motor 1 may also have multiple power discs 16 and 33 etc., running either clockwise, counter-clockwise, or both. One power disc 16 may rotate counter-clockwise and a second power disc 33 may rotate clockwise. In this configuration the amount of material pressing against the surfaces of the valve disc 2 remains the same per the number of power discs 16, 33, etc. As the power disc 16 rotates counter-clockwise and one of its power cups 24, 25, or 26 approaches the valve disc 2 it is so timed as to pass through the valve disc 2 aperture 3 which is also rotating. The valve disc 2 continues to

# **Detailed description of the invention**

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rotate, the aperture 3 so that the pressure or vacuum chamber 38 of the power disc 16 is closed. The continuing rotation of the valve disc 2, then opens the pressure/ vacuum chamber 39 of the power disc 33 allowing one of its power cups 36, 37, or 38 to pass through the aperture 3 of the valve disc 2. Both pressure/ vacuum chambers are then actuated simultaneously by means of the intake ports 29 and 40 and whatever valve system may be desirable causing the pressure on the valve disc 2 bearings 5 and 6 to be reduced to near zero.

Any number of valve discs 2a, 2b, etc., and power discs 16, 33, etc., rotating either clockwise or counter-clockwise could be used in the construction of the transverse disc motor 1.